



SEQUENCE LISTING

A
<110> Chen, Lieping
Bajorath, Jurgen

<120> ICOS Mutants

<130> 07039-331001

<140> US 10/072,622

<141> 2002-02-07

<160> 42

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<211> 118

<212> PRT

<213> Mus musculus

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Phe Pro Cys Glu Tyr Ser Pro Ser His Asn Thr Asp Glu Val Arg Val
20 25 30
Thr Val Leu Arg Gln Thr Asn Asp Gln Met Thr Glu Val Cys Ala Thr
35 40 45
Thr Phe Thr Glu Lys Asn Thr Val Gly Phe Leu Asp Tyr Pro Phe Cys
50 55 60
Ser Gly Thr Phe Asn Glu Ser Arg Val Asn Leu Thr Ile Gln Gly Leu
65 70 75 80
Arg Ala Val Asp Thr Gly Leu Tyr Leu Cys Lys Val Glu Leu Met Tyr
85 90 95
Pro Pro Pro Tyr Phe Val Gly Met Gly Asn Gly Thr Gln Ile Tyr Val
100 105 110
Ile Asp Pro Glu Pro Cys
115

<210> 2

<211> 118

<212> PRT

<213> Rattus norvegicus

<400> 2

Val Thr Gln Pro Ser Val Val Leu Ala Ser Ser His Gly Val Ala Ser
1 5 10 15
Phe Pro Cys Glu Tyr Ala Ser Ser His Asn Thr Asp Glu Val Arg Val
20 25 30
Thr Val Leu Arg Gln Thr Asn Asp Gln Val Thr Glu Val Cys Ala Thr
35 40 45
Thr Phe Thr Val Lys Asn Thr Leu Gly Phe Leu Asp Asp Pro Phe Cys
50 55 60
Ser Gly Thr Phe Asn Glu Ser Arg Val Asn Leu Thr Ile Gln Gly Leu
65 70 75 80
Arg Ala Ala Asp Thr Gly Leu Tyr Phe Cys Lys Val Glu Leu Met Tyr

85 90 95
 Pro Pro Pro Tyr Phe Val Gly Met Gly Asn Gly Thr Gln Ile Tyr Val
 100 105 110
 Ile Asp Pro Glu Pro Cys
 115

<210> 3
 <211> 118
 <212> PRT
 <213> Homo sapiens

<400> 3
 Val Ala Gln Pro Ala Val Val Leu Ala Ser Ser Arg Gly Ile Ala Ser
 1 5 10 15
 Phe Val Cys Glu Tyr Ala Ser Pro Gly Lys Ala Thr Glu Val Arg Val
 20 25 30
 Thr Val Leu Arg Gln Ala Asp Ser Gln Val Thr Glu Val Cys Ala Ala
 35 40 45
 Thr Tyr Met Met Gly Asn Glu Leu Thr Phe Leu Asp Asp Ser Ile Cys
 50 55 60
 Thr Gly Thr Ser Ser Gly Asn Gln Val Asn Leu Thr Ile Gln Gly Leu
 65 70 75 80
 Arg Ala Met Asp Thr Gly Leu Tyr Ile Cys Lys Val Glu Leu Met Tyr
 85 90 95
 Pro Pro Pro Tyr Tyr Leu Gly Ile Gly Asn Gly Thr Gln Ile Tyr Val
 100 105 110
 Ile Asp Pro Glu Pro Cys
 115

<210> 4
 <211> 118
 <212> PRT
 <213> Bos taurus

<400> 4
 Val Ser Gln Pro Ala Val Val Leu Ala Ser Ser Arg Gly Val Ala Ser
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 Phe Val Cys Glu Tyr Ala Ser Ser His Lys Ala Thr Glu Val Arg Val
 20 25 30
 Thr Val Leu Arg Gln Ala Asn Ser Gln Met Thr Glu Val Cys Ala Met
 35 40 45
 Thr Tyr Thr Val Glu Asn Glu Leu Thr Phe Ile Asp Asp Ser Thr Cys
 50 55 60
 Thr Gly Ile Ser His Gly Asn Lys Val Asn Leu Thr Ile Gln Gly Leu
 65 70 75 80
 Ser Ala Met Asp Thr Gly Leu Tyr Ile Cys Lys Val Glu Leu Met Tyr
 85 90 95
 Pro Pro Pro Tyr Tyr Val Gly Met Gly Asn Gly Thr Gln Ile Tyr Val
 100 105 110
 Ile Glu Pro Glu Pro Cys
 115

<210> 5
 <211> 119
 <212> PRT
 <213> Mus musculus

<400> 5

Val	Lys	Gln	Ser	Pro	Leu	Leu	Val	Val	Asp	Ser	Asn	Glu	Val	Ser	Leu
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Ser	Cys	Arg	Tyr	Ser	Tyr	Asn	Leu	Leu	Ala	Lys	Glu	Phe	Arg	Ala	Ser
			20					25					30		
Leu	Tyr	Lys	Gly	Val	Asn	Ser	Asp	Val	Glu	Val	Cys	Val	Gly	Asn	Gly
		35					40					45			
Asn	Phe	Thr	Tyr	Gln	Pro	Gln	Phe	Arg	Ser	Asn	Ala	Glu	Phe	Asn	Cys
	50					55					60				
Asp	Gly	Asp	Phe	Asp	Asn	Glu	Thr	Val	Thr	Phe	Arg	Leu	Trp	Asn	Leu
65					70					75					80
His	Val	Asn	His	Thr	Asp	Ile	Tyr	Phe	Cys	Lys	Ile	Glu	Phe	Met	Tyr
			85						90					95	
Pro	Pro	Pro	Tyr	Leu	Asp	Asn	Glu	Arg	Ser	Asn	Gly	Thr	Ile	Ile	His
			100					105						110	
Ile	Lys	Glu	Lys	His	Leu	Cys									
			115												

<210> 6

<211> 119

<212> PRT

<213> Rattus norvegicus

<400> 6

Val	Lys	Gln	Ser	Pro	Leu	Leu	Val	Val	Asp	Asn	Asn	Glu	Val	Ser	Leu
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Ser	Cys	Arg	Tyr	Ser	Tyr	Asn	Leu	Leu	Ala	Lys	Glu	Phe	Arg	Ala	Ser
			20					25					30		
Leu	Tyr	Lys	Gly	Val	Asn	Ser	Asp	Val	Glu	Val	Cys	Val	Gly	Asn	Gly
		35					40					45			
Asn	Phe	Thr	Tyr	Gln	Pro	Gln	Phe	Arg	Pro	Asn	Val	Gly	Phe	Asn	Cys
	50					55					60				
Asp	Gly	Asn	Phe	Asp	Asn	Glu	Thr	Val	Thr	Phe	Arg	Leu	Trp	Asn	Leu
65					70					75					80
Asp	Val	Asn	His	Thr	Asp	Ile	Tyr	Phe	Cys	Lys	Ile	Glu	Val	Met	Tyr
			85						90					95	
Pro	Pro	Pro	Tyr	Leu	Asp	Asn	Glu	Lys	Ser	Asn	Gly	Thr	Ile	Ile	His
			100					105						110	
Ile	Lys	Glu	Lys	His	Leu	Cys									
			115												

<210> 7

<211> 119

<212> PRT

<213> Bos taurus

<400> 7

Val	Lys	Gln	Ser	Pro	Met	Leu	Val	Val	Asn	Asn	Asn	Glu	Val	Asn	Leu
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Ser	Cys	Lys	Tyr	Thr	Tyr	Asn	Leu	Phe	Ser	Lys	Glu	Phe	Arg	Ala	Ser
			20					25					30		
Leu	Tyr	Lys	Gly	Ala	Asp	Ser	Ala	Val	Glu	Val	Cys	Val	Val	Asn	Gly
		35					40					45			
Asn	Phe	Ser	His	Pro	His	Gln	Phe	His	Ser	Thr	Thr	Gly	Phe	Asn	Cys
	50					55					60				
Asp	Gly	Lys	Leu	Gly	Asn	Glu	Thr	Val	Thr	Phe	Tyr	Leu	Lys	Asn	Leu
65					70					75					80

Tyr Val Asn Gln Thr Asp Ile Tyr Phe Cys Lys Ile Glu Val Met Tyr
 85 90 95
 Pro Pro Pro Tyr Leu Asp Asn Glu Lys Ser Asn Gly Thr Ile Ile His
 100 105 110
 Val Lys Glu Gln His Phe Cys
 115

<210> 8
 <211> 119
 <212> PRT
 <213> Homo sapiens

<400> 8
 Val Lys Gln Ser Pro Met Leu Val Ala Tyr Asp Asn Ala Val Asn Leu
 1 5 10 15
 Ser Cys Lys Tyr Ser Tyr Asn Leu Phe Ser Arg Glu Phe Arg Ala Ser
 20 25 30
 Leu His Lys Gly Leu Asp Ser Ala Val Glu Val Cys Val Val Tyr Gly
 35 40 45
 Asn Tyr Ser Gln Gln Leu Gln Val Tyr Ser Lys Thr Gly Phe Asn Cys
 50 55 60
 Asp Gly Lys Leu Gly Asn Glu Ser Val Thr Phe Tyr Leu Gln Asn Leu
 65 70 75 80
 Tyr Val Asn Gln Thr Asp Ile Tyr Phe Cys Lys Ile Glu Val Met Tyr
 85 90 95
 Pro Pro Pro Tyr Leu Asp Asn Glu Lys Ser Asn Gly Thr Ile Ile His
 100 105 110
 Val Lys Glu Lys His Leu Cys
 115

<210> 9
 <211> 112
 <212> PRT
 <213> Mus musculus

<400> 9
 Ala Asp His Arg Met Phe Ser Phe His Asn Gly Gly Val Gln Ile Ser
 1 5 10 15
 Cys Lys Tyr Pro Asp Ile Val Gln Gln Leu Lys Met Arg Leu Phe Arg
 20 25 30
 Glu Arg Glu Val Leu Cys Glu Leu Thr Lys Thr Lys Gly Ser Gly Asn
 35 40 45
 Ala Val Ser Ile Lys Asn Pro Met Leu Cys Leu Tyr His Leu Ser Asn
 50 55 60
 Asn Ser Val Ser Phe Phe Leu Asn Asn Pro Asp Ser Ser Gln Gly Ser
 65 70 75 80
 Tyr Tyr Phe Cys Ser Leu Ser Ile Phe Asp Pro Pro Pro Phe Gln Glu
 85 90 95
 Arg Asn Leu Ser Gly Gly Tyr Leu His Ile Tyr Glu Ser Gln Leu Cys
 100 105 110

<210> 10
 <211> 111
 <212> PRT
 <213> Homo sapiens

<400> 10

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Cys	Lys	Tyr	Pro 20	Asp	Ile	Val	Gln	Gln 25	Phe	Lys	Met	Gln	Leu 30	Leu	Lys
Gly	Gly	Gln	Ile 35	Leu	Cys	Asp	Leu 40	Thr	Lys	Thr	Lys	Gly 45	Ser	Gly	Asn
Thr	Val 50	Ser	Ile	Lys	Ser	Leu 55	Lys	Phe	Cys	His	Ser 60	Gln	Leu	Ser	Asn
Asn 65	Ser	Val	Ser	Phe 70	Phe	Leu	Tyr	Asn	Leu 75	Asp	His	Ser	His	Ala 80	Asn
Tyr	Tyr	Phe	Cys 85	Asn	Leu	Ser	Ile	Phe 90	Asp	Pro	Pro	Pro	Phe 95	Lys	Val
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<210> 14
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 <212> DNA
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<220>
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<400> 14
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<210> 15
 <211> 59
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<220>
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<400> 15
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<210> 16
 <211> 66
 <212> DNA
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<220>
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 agcaac 66

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<400> 17
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<220>
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<400> 18
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<210> 19
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<220>
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<400> 19
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<400> 29

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<210> 30

<211> 30

<212> DNA

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<220>

<223> Primer

<400> 30

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30

<210> 31

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 31

gcgatctcac taagacaagc ggaagtgg

28

<210> 32

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

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<400> 32

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28

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<210> 34

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<223> Primer

<400> 34

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29

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<212> DNA

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<210> 36

<211> 24

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<213> Artificial Sequence

<220>

<223> Primer

<400> 36

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<210> 37

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<212> DNA

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<400> 37

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<210> 38

<211> 24

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